2 Sheets—Sheet 1.

C. W. CAHOON.

Lamp Chimney Holder.

No. 31,511. Patented Feb. 19, 1861.

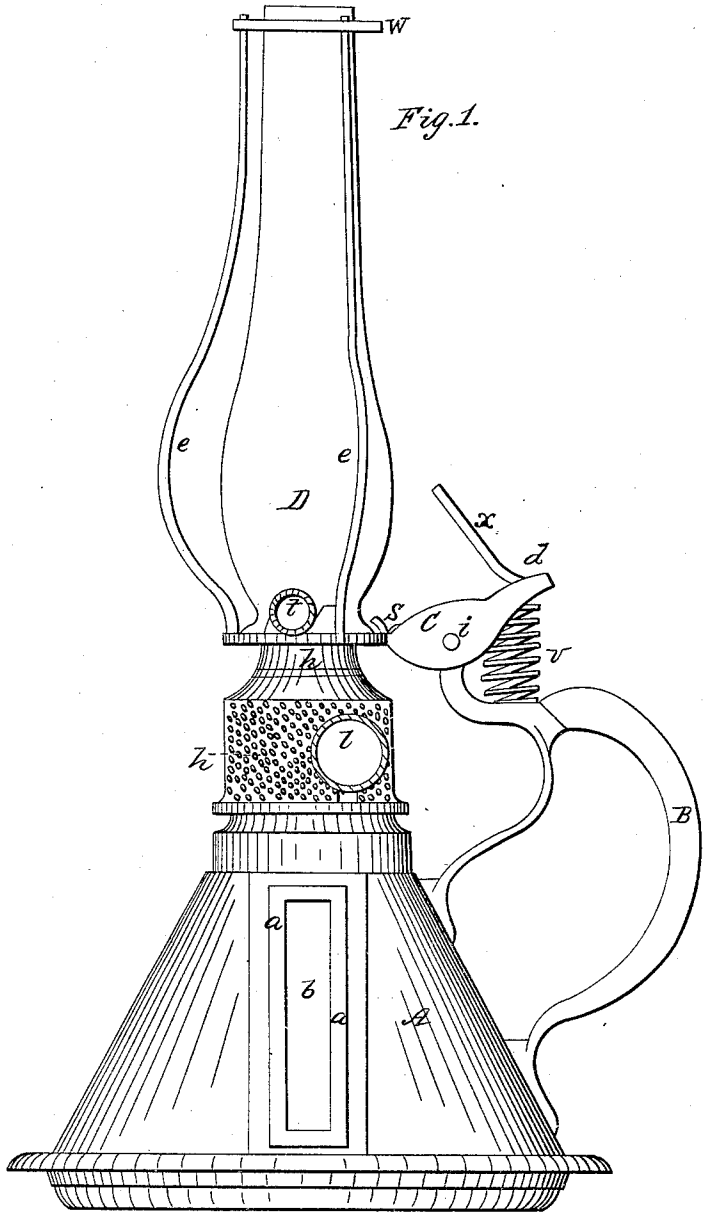


Fig. 1.

Witnesses:

A. C. Fusbich,

Clinton Fusbich

Inventor:

Charles W. Cahoon

N. PETERS. Photo-Lithographer. Washington, D. C.

2 Sheets—Sheet 2.

C. W. CAHOON.

Lamp Chimney Holder.

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Fig. 4.

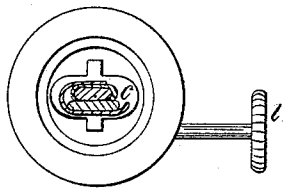


Fig. 3.

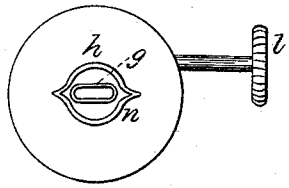
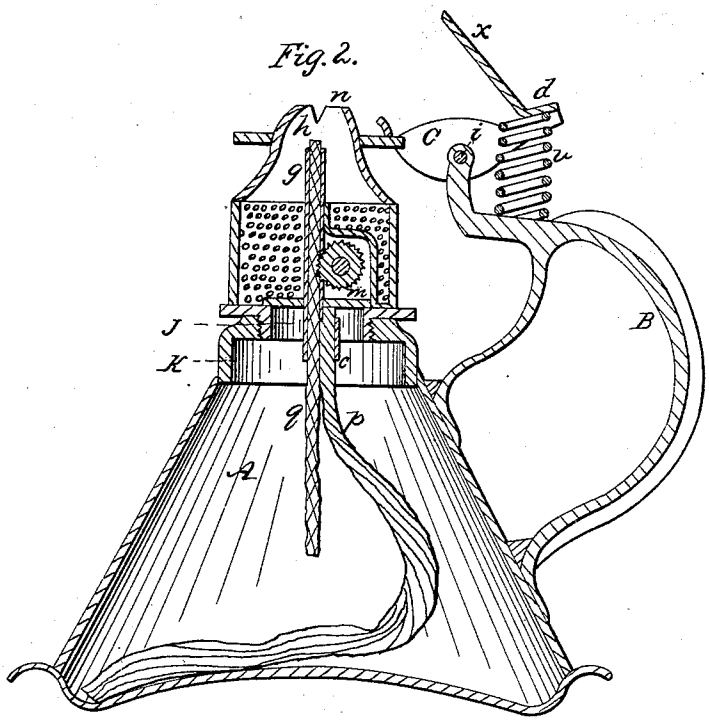


Fig. 2.



Witnesses:

A. H. F. Furbish

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Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES W. CAHOON, OF PORTLAND, MAINE, ASSIGNOR TO JAMES B. CAHOON, OF SAME PLACE.

LAMP.

Specification forming part of Letters Patent No. 31,511, dated February 19, 1861; Reissued August 9, 1864, No. 1,735.

To all whom it may concern:

Be it known that I, CHARLES W. CAHOON, of Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Lamps, and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 represents a side elevation of a hand-lamp embodying all my improvements, Fig. 2 represents a vertical section of the same, Fig. 3 represents a top view of the burner of the lamp, and Fig. 4 a view of the same reversed.

A small lamp, which would burn the oils that are rich in carbon (such for example as kerosene) with success, so as to produce a small quantity of light with economy, and that would be of such light weight and small bulk that it could be readily carried about as a hand-lamp, and would at the same time burn the oil so completely that it could be used for lighting other lamps without smoking, has long been a desideratum, but so far as I am aware of no lamp possessing these qualities has been produced prior to my invention. Hence it is customary at the present day to use candles, small oil lamps, and hand lamps burning explosive, burning fluid, where a small quantity of light is wanted, or the light is to be carried about by the hand, or to be used in lighting other lamps; although it is well known that such means of producing light are much less economical in proportion to the quantity of light given out by them than the large kerosene lamps. In experimenting upon this subject I have found that the same proportionate sizes of wick chimney and thimble, or air cone, which are adapted to produce a perfect combustion in large lamps are wholly unsuited to lamps of small size suitable for hand lamps; and I have found it necessary to make certain new combinations of the elementary constituents of lamps in order to obtain a small hand lamp having all the desirable qualities to which I have before referred. These new combinations constitute my invention, which is divided into several parts.

The object of the first part of my invention is to permit the chimney of the lamp to be withdrawn from the burner and replaced with facility, so that the lamp may be used to light other lamps with despatch by the direct application of its flame.

This part of my invention consists in combining mechanical devices for holding the chimney with a thumb lever, the arrangements of the parts being such that the chimney fastenings are located at one side of the fulcrum of the lever, and a thumb plate at the opposite side.

The object of the second part of my invention is to prevent the accidental contact of the thumb with the hot chimney when removing the latter, whereby a bad burn would be produced.

This part of my invention consists in combining a guard with the thumb lever, the guard being located between the position of thumb and the fastenings for the chimney.

The object of the third part of my invention is to hold the chimney in its place when the lamp is being carried about by hand.

This part of my invention consists in combining a spring with the thumb lever in such manner that the spring bears the part of the lever to which the chimney is fastened upon the burner of the lamp, or its equivalent for sustaining the chimney.

The object of the fourth part of my invention is to protect the chimney from injury by collision with other objects, without interfering with the ready withdrawal of it from the burner, and its replacement thereon.

This part of my invention consists in combining a chimney-guard with the thumb lever, so that the guard, chimney, and lever maintain their proper relations in all positions of the chimney.

It is well known that a lamp body wholly of glass is objectionable on account of its fragility unless it be made of great thickness, and such a glass body is objectionable on account of its weight and cost; on the other hand a lamp body wholly of metal, although free from the defects of a glass body, is opaque and does not permit the user to see the level of the oil within it.

The object of the fifth part of my invention is to enable the user to see when a lamp made of opaque material, such as metal, requires to be filled, without the necessity of unscrewing or removing any portion thereof to permit the user to look into the lamp.

This part of my invention consists in combining a transparent plate with a metal

lamp body, so that the combined strength and lightness of sheet metal may be made available for the construction of the greater portion of the body of a lamp, without preventing the user from seeing the level of the oil, and the glass used may be reduced to so small a breadth that it may be made strong enough to resist all ordinary accidents without any material increase in the weight or cost of the lamp.

All the parts of my invention are embodied in the hand-lamp represented in the annexed drawing, and I believe that the best hand-lamp will be obtained by such a use of my invention, although parts of it may be used without the remaining parts as constructors of lamps may deem expedient.

The body A of the hand-lamp represented in the drawing is made mainly of tin plate with a glass plate *b* inserted in its side. This glass plate is held in place by a frame-work of tin plate, which is soldered to the body, and whose lips *a a* lap over the edges of the glass plate. The joint is made tight by means of cement, which, when kerosene or oil is burned, may be made of shellac and alcohol. The lamp body has a handle B secured to one side in a convenient position to be grasped by the hand of the user when the lamp is to be moved; this handle also supports the fulcrum pin *i* of the thumb lever C, to which the chimney D is fastened.

The body of the lamp is surmounted by the burner, which consists of the wick holder *g* and the thimble or air cone *h*, by which air is guided against the flame. The wick holder, or tube, *g*, is secured in a plate *j*, which is screwed into a tubular head *k*, that is made fast to the body of the lamp; so that the burner can be removed for the purpose of filling the lamp with oil or supplying a new wick. The wick holder is flat and narrow, or in other words of small breadth, so as to hold a narrow flat wick; and it is fitted with a toothed spindle or barrel *m*, having a stem and milled head *l*, by turning which the wick may be raised or depressed. The tube plate *j* supports the thimble *h* which surrounds the wick tube, and is perforated at its sides to admit air. The upper end of this thimble is contracted so as to form a circular opening *n*, that is at a short distance above the upper end of the wick tube and forms the orifice through which the flame issues. The parts of this circular orifice which are opposite the narrow sides of the wick tube are notched, as shown in the drawing, the practical effect of which is to cause the flame to spread laterally.

The lamp represented in the drawings is fitted with a supplementary wick holder for the purpose of holding a supplementary wick.

The supplementary wick holder is located in this instance wholly beneath the tube plate *j*, and consists of a spring plate *c*, which holds the upper end of the supplementary wick, *p*, in contact with the burning wick, *q;* the side of the wick tube adjacent to the supplementary wick holder is removed, so that no obstacle intervenes between the two wicks; hence the oil drawn up by the supplementary wick is transferred by capillary attraction to the burning wick when the latter is too short to reach down into the oil and draw its own supply.

The burner is surmounted by the thumb lever C, and chimney D. The former is pivoted near the middle of its length to the handle B of the lamp; that portion of it which extends over the handle is formed into a thumb plate *d*, to which the thumb of the hand that grasps the handle can be readily applied. The portion of the lever which extends over the burner has the form of a broad ring *r*, that fits upon and is sustained by the conical end of the thimble *h;* this ring supports the chimney D, which is fastened to the thumb lever by means of two lip fastenings *s s*, and by a screw *t*. The thumb lever also sustains the chimney-guard, which consists of a series of wires *e*, which, being secured by their lower extremities to the thumb lever, project upward at the sides of the chimney, and are connected at their upper extremities by a ring *w*, that encircles the upper end of the chimney. From this combination of the chimney-fastenings with a thumb lever, the chimney can be readily withdrawn from the burner by the pressure of the thumb, thus permitting the flame that issues from the burner to be brought into contact with the wicks of other lamps, or with gas issuing from gas burners, for the purpose of lighting them; and the chimney can be as readily replaced upon the burner by relaxing the pressure of the thumb.

In order to maintain the chimney in its position when the lamp is carried about by the hand, the ring *r*, to which the chimney is fastened, is pressed upon the burner by a spring *v*, located between the thumb plate *d* and the handle; and in order to prevent the accidental burning of the thumb of the user by contact with the highly heated chimney, a guard-plate, *x*, is combined with the thumb lever at a point intermediate between the thumb plate *d* and the chimney D. The combination of the chimney-guard with the thumb-lever permits it to maintain its proper relation to the chimney in whatever position the latter be placed, thus enabling a chimney-guard to be used upon a small lamp adapted to lighting other lamps.

Having thus described a hand-lamp embodying all my improvements, I deem it proper to state that parts thereof may be modified without changing the principle of

my invention; thus for example the precise form of the orifice of the air thimble may be varied, and it may even be rectangular, but its proportionate size to the wick can not be varied materially without rendering the lamp practically valueless.

The practical success of my lamp depends upon the employment of a narrow flat wick, as the object is to afford only a comparatively small light with a perfect combustion of the oil, and I have found by experiment that the width of the orifice of the thimble measured in a direction crosswise to the breadth of the flat wick, or in other words in the direction of the line *z z* of Fig. 3, should be about as great as the breadth of the wick tube measured in the direction of the line *y y* of Fig. 3, or even still greater than the breadth of the flat wick tube when a still narrower wick than that represented in the drawing is used, in order to prevent the draft of air from extinguishing the light when the wick is being turned down (after lighting the lamp) to its proper position for burning, and in order also that the flame may extend up through the orifice when the chimney is withdrawn. I have also described the lever for operating the chimney as a thumb lever, from its movement by the thumb of the user; but it is evident that it may be operated by one of the fingers of the user and may be modified to adapt it to such operation.

The lamp represented in the drawings is adapted to burning pure kerosene oil which has not been affected by long exposure to the air; it is well known among dealers that oil which has been so exposed is not as good as that which has been kept from contact with the air, and is liable to smoke when burning.

I do not claim any one of the separate elements, which are combined to make my new combinations, separately; but

What I claim as my invention and desire to secure by Letters Patent is—

1. The combination of chimney-fastenings with a thumb lever substantially as described, so that the chimney may be withdrawn by pressure upon the lever.

2. The combination of a guard with the thumb lever, the said guard being located between the chimney and that end of the lever to which pressure is applied, substantially as described.

3. The combination of a spring with a thumb lever fitted with chimney fastenings substantially as described.

4. The combination of a chimney-guard with a thumb lever, substantially as described.

5. The combination of an opaque lamp body with a transparent plate substantially as described.

In testimony whereof I have hereunto subscribed my name.

CHARLES W. CAHOON.

Witnesses:

CLINTON FURBISH,

A. H. F. FURBISH.